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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,352	06/14/2000	Douglas W. Raymond	TER-012PUS	8371

32605 7590 05/20/2005

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EXAMINER
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WONG, ALLEN C

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/593,352

Applicant(s)

RAYMOND ET AL.

Examiner

Allen Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-13 and 15-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-11 and 17-23 is/are allowed.
- 6) ☒ Claim(s) 12,15 and 16 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 1/10/05 have been fully read and considered but they are not persuasive.

Regarding lines 9-11 on page 7 of applicant's remarks, applicant asserts that the examiner is using hindsight reconstruction. The examiner respectfully disagrees. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Regarding lines 7-10 on page 8 of applicant's remarks, applicant contends that Magro does not teach that "peripherals such as cameras and other devices can be accessed by connecting to a DMA controller through plural DMA channels". The examiner respectfully disagrees. In Magro's fig.2 and col.4, ln.61 to col.5, ln.65, Magro suggests that peripherals can be accessed by connecting to a DMA controller through plural DMA channels, and that peripherals is a term that can imply a variety of periphery devices that can include cameras. There peripheral devices, ie. cameras, can be commonly connected to a DMA controller for properly accessing multiple cameras, and that each camera can be connected to a DMA channel.

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Regarding lines 11-12 on page 8 and lines 4-7 on page 9 of applicant's remarks, applicant states that there is no motivation to combine the teachings of Wasserman and Magro. The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art to take the teachings of Wasserman and Magro, as a whole, for freeing up the computer processor to execute and perform other tasks so as to speed up the overall computer operation, as disclosed in Magro's col.3, lines 1-7.

Moreover, both Wasserman and Magro pertain to the computer data analysis environment, and thus, the combination is combinable and useable together to suggest the broad limitations of claim 12. Claims 15-16 are rejected for at least the same reasons as disclosed above for claim 12 and the reasons as explained below in the rejection.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wasserman (5,260,779) in view of Magro (6,260,081).

Regarding claims 12 and 15, Wasserman discloses an optical inspection system for inspecting an object, comprising:

a plurality of cameras for imaging the object (see col.3, ln.43-47 and fig.2, note plural cameras 13-16 are used to inspect circuit board);

an illumination system for providing a plurality of lighting modes to illuminate the object for the plurality of cameras (fig.1, element 20 is a lighting fixture used for illuminating the object, circuit board);

a main computer coupled to the plurality of cameras and the illumination system (fig.2, element 30 is a main computer);

a frame grabber unit for receiving image data from the plurality of cameras, wherein the frame grabber unit includes at least one image acquisition board having a plurality of channels for transmitting image data from at least two of the plurality of cameras concurrently to main memory, which is directly accessible by the main computer (fig.2, note the images obtained by cameras 13-16 have respective outputs 21-24, and that these image outputs 21-24 are sent to frame storage units 25-28, functioning to be the main memory, where main computer 30 can access these images stored in the frame storage units 25-28 for viewing).

Wasserman discloses the use of multiple cameras with multiple storage units corresponding to each camera (fig.2). Although Wasserman does not specifically

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disclose wherein each of the plurality of channels correspond to a DMA channel, however, Magro teaches the use of a DMA controller with a plurality of DMA channels that can be accessed (see fig.2 and col.4, ln.61 to col.5, ln.65; peripherals such as cameras and other devices can be accessed by connecting to a DMA controller through plural DMA channels). Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Wasserman and Magro, as a whole, for freeing up the computer processor to execute and perform other tasks so as to speed up the overall computer operation (Magro col.3, ln.1-7).

Regarding claim 16, Wasserman discloses the object is a circuit board (col.3, ln.43-47).

***Allowable Subject Matter***

1. Claims 1, 3-11 and 17-23 are allowed.
2. The following is an examiner's statement of reasons for allowance: The prior art does not specifically disclose the limitation, "wherein the plurality of cameras are adapted to obtain image data of the object based upon a plurality of fields of view of the object and a series of firing positions within each field of view, each of the firing positions having associated therewith at least one of the plurality of cameras and at least one of the plurality of lighting modes provided by the illumination system, wherein the optical image system is adapted to image a first one of the plurality of fields of view of the object with the at least one of the plurality of cameras in first and second ones of the plurality of lighting modes in a single pass ", used in combination with all of the other limitations of claim 1. Claims 17 and 23 are patentable for similar reasons as claim 1.

3. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

#### ***Contact Information***

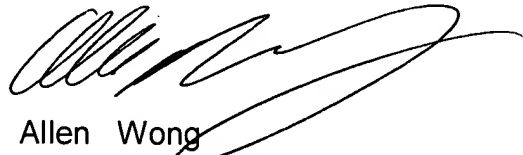
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (571) 272-7341.

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The examiner can normally be reached on Mondays to Thursdays from 8am-6pm  
Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen Wong  
Primary Examiner  
Art Unit 2613

AW  
5/17/05